

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-315643

(43)Date of publication of application : 26.11.1993

(51)Int.Cl.

H01L 33/00

G09F 9/33

// H01L 21/20

(21)Application number : 04-115947

(71)Applicant : NKK CORP  
NAGOYA KOGYO UNIV

(22)Date of filing : 08.05.1992

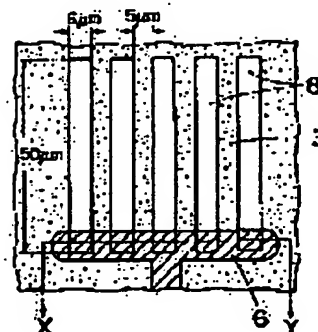
(72)Inventor : OMURA MASAKI  
SUZUKI TAKESHI  
UMENO MASAYOSHI

## (54) LIGHT-EMITTING DIODE ARRAY AND MANUFACTURE THEREOF

### (57)Abstract:

**PURPOSE:** To provide a light-emitting diode array which can reduce lattice distortion and thermal stress of a III-V group chemical compound semiconductor formed on a silicon semiconductor substrate, and can extend remarkably the light emitting duration of life, and to provide the manufacture of the light-emitting diode array.

**CONSTITUTION:** III-V group chemical compound semiconductors composed of GaAsP are laminated by optional epitaxial growth method on a silicon semiconductor substrate of a region surrounded by an insulating film 3 bonded on the silicon semiconductor substrate. As a result, PN junction is formed, and a conductive film 6 serving as an electrode is bonded on the main surface of the III-V group chemical compound semiconductors. The light-emitting area of a single unit light-emitting diode 8 with rectangular shape consisting of PN junction is set to less than  $400\mu\text{m}^2$ . One side in longer direction of a light-emitting section with rectangular shape is set to less than  $50\mu\text{m}^2$  thereby light-emitting life can be extended remarkably. At the same time, it is possible to form a relatively large light-emitting diode by integrating single unit light-emitting diode.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]